MINUTES OF DOT-AGC BRIDGE DESIGN SUBCOMMITTEE MEETING

The DOT-AGC Joint Bridge Design Subcommittee met on March 27th 2002. Those in attendance were:

Tim Rountree	State Bridge Design Engineer (Co-Chairman)
Berry Jenkins	Manager of Highway Heavy Division, Carolinas Branch AGC (Co-Chairman)
Ron Shaw	Lee Construction Company of Carolinas, Inc.
Michael Dane	Dane Construction, Inc.
Kevin Burns	R. E. Burns & Sons Co.
Richard Holshouser	Sanford Contractors, Inc.
Ron Hancock	State Bridge Construction Engineer
Tom Koch	Structure Design Project Engineer
K J Kim	Soils and Foundation Engineer
Laura Sutton	Structure Design Engineer
Mike Wilson	Old Castle
W. Craig Helms	Carolina's Concrete Pipe and Products Association
John Boniface	Metromont Materials
Tyson Hicks	Rinker Materials – Hydro Conduit
Michael Barnes	Rinker Materials – Hydro Conduit

The following items of business were discussed:

1. The minutes of the January 23rd, 2002 meeting were accepted.

2. *Precast Box Culvert Update*

   Mr. Koch reported that the precast concrete box culvert task force met on March 18th, 2002. In the task force meeting the Carolina's Concrete Pipe and Products Association (CCPPA) distributed proposed guidelines and specifications covering fabrication and installation of precast concrete box culverts.

   Mr. Koch stated that one notable requirement included in the proposed guidelines was that a representative of the precast producer be on site during installation of the precast box culvert until there is a mutual agreement between all parties represented that all installation procedures are met. Other suggestions discussed by the Task Force:
   - Requiring a positive attachment between box sections
   - Tightening fabrication tolerances
   - Requiring the leveling pad to be 2" of sand or #57 stone wrapped in filter fabric
   - Improving the Geotechnical information at culvert sites

   Mr. Koch reported that NCDOT would have an internal meeting to discuss the guidelines and alternatives on March 28, 2002 and then subsequently meet with the entire task force on April 5th, 2002.

3. *Test Cylinder Storage*

Mr. Hancock stated that he recently requested that DOT build test cylinder curing boxes for use by the inspectors during a trial period of time. Mr. Burns stated that he was in favor of the contractor being responsible for providing the curing boxes and stated the issue should be addressed at the preconstruction meeting. Mr. Hancock concluded that he would prepare a preliminary draft to be included in the contract stating that the contractor would be responsible for the test cylinder storage. This draft will be presented to the committee for review at the next scheduled meeting.

4. *Low Concrete Strength Penalties*

Mr. Hancock stated this was a non-issue.

5. *Conduit Systems on Bridges*

Mr. Koch stated that he had investigated whether a bridge conduit system could be installed by the contractor and then inspected by a licensed electrical contractor. Mr. Koch stated that the National Electric Code (NEC) requires a conduit system of electrical wires to be installed by a licensed electrical contractor, but if the conduit was carrying fiber optic cables then it could be installed by an unlicensed contractor. After some discussion it was concluded that for the majority of bridges, the future use of the conduit system is unknown at the time of construction therefore it should be installed by a licensed electrical contractor.

6. *Piles and Coatings*

Mr. Koch reported that Industrial Galvanizers stated that the maximum length pipe or H pile they could galvanize is 70'-80'. Mr. Hancock questioned the payment method (i.e. incidental to the pile or per linear foot of pile) of galvanizing the piles. After some discussion it was concluded that payment of galvanizing shall be incidental to the pile. The contractors that were present agreed that the galvanized coating was their choice in lieu of the coal tar epoxy coating. However, Mr. Burns raised concerns about the availability of galvanized piles. Mr. Koch stated Structure Design would investigate allowing painted piles as an option to galvanized piles.

7. *Other*

i. Barrier Rail Transition

Mr. Koch stated that Roadway Design had presented to Structure Design a Minnesota DOT barrier rail transition that had been tested and approved by the FHWA. Mr. Koch stated that Roadway Design favored Minnesota DOT's transition and asked Structure Design to consider implementing the transition in NC in lieu of the recently introduced barrier rail transition. Ms. Sutton distributed copies of the Minn. DOT and the current NCDOT transition for comparison and comments.

Mr. Burns stated that is would be very helpful to the contractors if NCDOT implemented a barrier rail transition that would be used on a long-term basis without changes. Mr. Holshouser stated that he preferred the NCDOT barrier rail transition because the Minnesota DOT transition would not require the minimum amount of concrete that could be ordered and therefore the remainder of concrete would be wasted. He also said that the small curb would have to be hand formed and would lead to inconsistencies between curbs. Mr. Holshouser stated that the current NCDOT transition allows the contractors to make a form that could be used repeatedly producing a uniform result. Mr. Hancock stated that he preferred the thrie beam guardrail attachment over the W-shape and also agreed with Mr. Holshouser that the curb detailed in the Minnesota DOT transition would require unnecessary hand work to form. Structure Design will convey the comments of the AGC to Roadway Design.

ii. Shear Stud Requirements

Mr. Jenkins reported that Federal OSHA recently released a set of guidelines to their OSHA inspectors, which included a question and answer format. Mr. Jenkins stated that although North Carolina was continuing to adhere to the requirements agreed upon by the Department of Labor the following questions in the guidelines should be reviewed by NCDOT:

Question #15 stated that prior to the erection of structural steel, the steel erector must have a letter from the contractor stating that the concrete in the substructure has attained the required strength.

Question #30 & #31 stated that when there is modification to the location of the anchor bolts due to fit-up problems in the field, the design engineer must approve the modifications.

Mr. Hancock stated that he would review the questions for compliance by NCDOT.

iii. Rideability Specification

Mr. Hancock distributed a rideability specification for review by the committee. Mr. Hancock stated that this specification had been utilized on several coastal bridges that were 1000 feet or longer in length, and that he was considering requiring this specification on more bridges. Mr. Hancock stated that he would contact Pavement Management to discuss the best testing methods. Mr. Shaw stated that South Carolina DOT runs the Rainhart Profilograph on all bridges. After some discussion about the length of bridges to be tested and which agency would perform the testing, the contractors agreed to review the specification and give feedback at the next meeting.

iv. Bentonite Slurry vs. Polymer Slurry

Mr. Holshouser stated that other states allowed both bentonite and polymer slurries where currently NCDOT only allowed bentonite slurries for drilling foundations. He also stated that the drilling contractors he had spoken to prefer the polymer slurry. Mr. Rountree stated that the national trend was moving toward polymer slurries mainly because they were environmentally safe. Mr. Hancock stated that NCDOT was using polymer slurries in the foundations of the Wilmington bypass. Mr. Hancock also stated that he believed the reason NCDOT does not allow polymer slurries is because of the many variations of polymers available and predicting the exact performance of each was difficult. After some discussion among the committee, it was concluded to discuss the issue with the Soils and Foundation Section and report the findings at the next scheduled meeting.

v. Cored Slab Joint Detail

Mr. Holshouser stated that, in his opinion, the new cored slab joint detail including 12" bond breaker tape would not be effective in reducing joint cracking on superelevated cored slab bridges. Mr. Holshouser stated that a constant 2" depth asphalt is not thick enough to bridge the joint and would spall under traffic since it was not bonded to the deck. Mr. Hancock stated that the new joint detail uses a 12" bond breaker tape around the joint to allow movement and was created in an attempt to reduce joint cracking and degrading reported by the Bridge Maintenance Unit. Mr. Hancock stated that he would instruct the area bridge engineers to monitor several cored slab bridges with this detail.

vi. Lump Sum Projects

Mr. Holshouser stated that there were difficulties in bidding some of the lump sum items included in the recently let lump sum projects. He stated that there were no problems with bridge items but that Roadway items like grading, erosion control, seeding, and paving should not be listed as lump sum items due to their unpredictable quantity. In bidding these items on a lump sum basis, the contractor must gamble on the quantity of overrun to bid upon which will increase the cost of these projects. The contractors present were in agreement with Mr. Holshouser's statements.

vii. Concrete Deck Pours

Mr. Dane questioned the progress of eliminating small deck pours in continuous for live load prestressed concrete girder superstructures. Mr. Hancock and Mr. Koch stated the goal was to maintain a minimum 75 yd^3 deck pour. Mr. Rountree stated that the topic would be discussed in a structure workshop on April 4 and the Structure Design Unit would look into implementing a criteria such as this.

viii. Next Meeting

The next meeting is scheduled for May 29th at 10:00 a.m. in the Structure Design Unit Conference Room C.